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The Effect of Participative Budgeting on Performance-to-Goal

참여적 예산설정이 성과목표 달성수준에 미치는 영향

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The Effect of Participative Budgeting on Performance-to-Goal

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Abstract

Despite continued popularity of participative budgeting, prior studies in this area resort to proprietary survey data, laboratory experimental evidence, or data from single firms with multi-business units due to a lack of detailed information related to participative budgeting. Using a sample of 633 firm-year observations from S&P 1500 firms for fiscal years 2009 to 2011, I examine the relation between the use of participative budgeting and performance-to-goal. First, I find that the performance-to-goal of participative budgeting firms is higher than that of non-participative budgeting firms. Second, I investigate whether higher performance-to-goal is driven by motivational effects or slack building activities triggered by participative budgeting. I decompose performance-to-goal into effort level and budgetary slack using analysts′ forecasts as the benchmark to show that motivational effects dominate and result in higher performance-to-goal for participative budgeting firms. Overall, this study reaffirms the continued popularity of participative budgeting in a budget-setting process.

Keywords: Participative budgeting; Motivational effect; Budgetary Slack.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION

Since a seminal work by Argyris [1952], participative budgeting, a process in which a manager is involved with and have influence on the determination of his or her budget (Shields and Shields [1998]), has been one of the heavily researched topics in managerial accounting area over the past a half century (Hofstede [1968], Brownell [1982a], Brownell and McInnes [1986], Brownell and Dunk [1991]). Accounting research documents that participative budgeting generally improves subordinates' economic outcomes by providing superiors with some of their subordinates' private information (Baiman and Evans [1983]). At the same time, another strand of literature on participative budgeting highlight that participation of subordinates may result in the generation of slack budgets (Dunk [1993]).

This study examines the use of participative budgeting in S&P 1500 firms in executives' annual bonus compensation. In particular, I address two questions related to the use of participative budgeting. First, I investigate whether firms that explicitly disclose their use of participative budgeting are more likely to show a higher level of performance goal achievement (p-to-g; defined as the ratio of actual performance relative to performance target). Second, I examine whether the increase in actual performance or the decrease in performance target has a stronger impact on the overall increase in performance-to-goal.

While a few studies are unable to show a link between budgetary participation and performance (Brownell and McInnes [1986]), participative budgeting literature generally documents a positive relation between two variables. Subordinates participating in the budgeting process show higher levels of budget goal commitment (Argyris [1952], Locke,

Bryan, and Kendall [1968], Chong and Chong [2002a]) because they internalize goals (Hofstede [1968]) and increase their trust, sense of control, and ego-involvement with the organization (Shields and Shields [1998]). In addition, based on goal-setting theory, subordinates who are offered the opportunity to be involved with and have influence on budget goals are more likely to gather, exchange, and disseminate job-relevant information if they are highly committed to their budget goals (Locke and Latham [1990], Chong and Chong [2002a]) and thereby show a higher level of job performance relative to authoritative budgeting setting (Atkinson, Banker, Kaplan, and Young [2001], Tromp [2009]).

On the other hand, budgetary participation is argued to leave room for slack budgets by subordinates. Slack is defined as the amount by which a subordinate overstates his or her needs for resources to complete a task or understates his or her productive capability (Walker and Johnson [1999]). The literature mainly proposes two variables whereby participative budgeting could affect slack building activities; the superiors' budget emphasis and the information asymmetry between superiors and subordinates. It is assumed that budgetary participation with high (low) level of budget emphasis and high (low) information asymmetry generates high (low) budgetary slack (Dunk [1993]).

Despite its theoretical appeal and long research history, these two conflicting literatures on participative budgeting have each developed on their own, leaving scant evidence on whether job performance enhancement overwhelms slack building activities or the other way around. One possible research method is to observe whether participative budgeting firms' performance-to-goal is higher or lower. Assuming that participative budgeting firms have higher performance-to-goal, this could be achieved through higher

performance and/or lower performance targets (Anderson, Dekker, and Sedatole [2010]).

In this light, Murphy [2001] points out that executives' bonuses are usually not strictly based on a performance measure, but rather on performance measured relative to a performance target. Similarly, Indjejikian and Nanda [2002] document the relation between actual performance at the end of the fiscal year and target bonuses, which proxies firms' *ex ante* incentive design decisions, to find implications on performance goal achievement. These studies suggest that research examining the impact on actual performance or performance targets alone constitutes an incomplete analysis.

This study proposes a link between job performance enhancement and budgetary slack in participative budgeting setting by taking a look at EPS performance-to-goal of S&P 1500 firms in annual incentive plans. Following December 15, 2006, the Securities and Exchange Commission (SEC) mandate that firms should disclose more information on executive compensation. Pertinent to this study, firms are required to disclose specific items of corporate performance measures, target levels, and actual performance. To my knowledge, this is the first archival study to examine the use of participative budgeting in a large-sample setting. The availability of new data source enables us to examine firms' participative budgeting behavior in a large-sample setting.

I gather information on whether or not firms' budget-setting process takes a form of participative budgeting based on compensation discussion and analysis (CD&A) section of firms' SEC proxy statements. To be specific, in setting performance goals, if firms' compensation committee considers recommendation from CEO or management according to their proxy statements, then the firm is defined as a participative budgeting firm. If firms

do not explicitly disclose information on whether the compensation committee considers recommendations from CEO or management, then the firm is defined as a non-participative budgeting firm.

To avoid measurement error and to facilitate comparison among firms, I restrict sample firms to those that use earnings per share (EPS) as one of their performance measures in annual incentive plans, since Kim and Yang [2010] document that EPS is the most widely used performance measure in annual incentive plans. Since most firms disclose the use of participative budgeting in the target-setting process as a whole, not the use of participative budgeting on each performance measure, I assume that if a firm discloses as a participative budgeting entity, participative budgeting is used in target-setting process for all performance measures. Thus, I believe the decision to use budgetary participation for one specific performance measure is not assumed to affect the use of budgetary participation for other performance measures. Overall, sample construction consisting solely of firms that use EPS as a performance measure does not seem to be affected by self-selection problems.

My starting point is the findings of Anderson et al. [2010], who find that within a single firm that changes its compensation plan from a seniority-based plan to a pay-for-performance plan in which the bonus-eligible managers participate in goal-setting, its performance-to-goal increases after adopting the new plan. Consistent with this perspective, I hypothesize that participative budgeting firms' performance-to-goal in their annual bonus plans are significantly higher than that of non-participative budgeting firms. Taking advantage of a unique dataset that covers S&P 1500 firms that use EPS as one of their

performance measures in their annual bonus plans, I document that participative budgeting firms' EPS performance-to-goal is higher. In particular, an indicator variable that captures whether or not a firm uses a participative budgeting in its annual executive bonus plan is still significantly positive after controlling for firm characteristic and CEO attribute variables.

However, my explanation on why participative budgeting firms' EPS performance-to-goal is higher differs from that of Anderson et al. [2010]. They argue that improved goal accuracy following the introduction of a goal-based bonus plan leads to higher performance-to-goal. Contrary to their expectations, I find no evidence on improved goal accuracy in a large-sample setting. To find out what determines the level of performance-to-goal, I decompose EPS performance-to-goal into two terms, effort level and budgetary slack, using analysts' forecasts as a benchmark against which actual performance and performance targets are compared. I investigate the extent to which an indicator variable that captures participative budgeting affects effort level and target easiness and find that higher EPS performance-to-goal for participative budgeting firms is not driven by budgetary slack, but from increased effort level.

My finding contributes to the literature in several ways. First, my study provides the first large-sample evidence of the effect of participative budgeting in the context of annual executive bonus plan using publicly available data. Prior studies base their findings on a survey-based field data among directors from a small group of firms. By using hand-collected information, my study directly answers a call from Shields and Shields [1998] to "revise [participative budgeting's] measurement" by offering the first large-sample

evidence on the impact of participative budgeting has on performance enhancement and slack building activities.

Second, my study is the first to use one of the most widely used proxies for market expectations on firm performance, analysts' forecasts, to measure *a priori* estimate of work performance in a participative budgeting setting. Prior studies use a survey item that directly asks subordinates to evaluate performance (budgets) relative to superiors' expectations (their own best estimate of performance), casting doubt on the data reliability. By relying on "hard" data of analysts' forecasts (Ittner and Larcker [2001]), my study avoids possible limitations of prior studies such as the leniency bias (Chenhall and Brownell [1988], Kren [1992]).

The remainder of this study is organized as follows. I develop my hypothesis in Section 2 and discuss my research design in Section3. Section 4 presents the empirical results and Section 5 summarizes and concludes the study.

2. RELATED LITERATURE AND HYPOTHESES DEVELOPMENT

2.1. RELATED LITERATURE

Although budgets are often criticized by academics and practitioners, studies have shown that the vast majority of organizations use budgets (Sivabalan, Booth, Malmi, and Brown [2009]) as a key element of any firm's organizational design with which information is communicated (Heinle, Ross, and Saouma [2014]). Over the past few decades, firms are increasingly involving their subordinates in the budgeting process, consistent with firm

hierarchies becoming flatter (Rajan and wulf [2006]).

Among prior studies, most research on participative budgeting to date has been based on proprietary survey data (Young [1985], Nouri and Parker [1998]), data from single firms with multi-business units (Anderson et al. [2010]), theoretical modeling (Heinle et al. [2014]), and experimental results (Antle and Eppen [1985], Douthit and Stevens [2015]). For example, Brown, Evans, and Moser [2009] document that participative budgeting represents one of the most widely researched topics in experimental research in managerial accounting. However, an empirical study on participative budgeting has been rare due to data-availability issues, let alone in a large-dataset setting. Before the SEC's 2006 disclosure requirements, firms were not required to disclose a detailed description of the process of setting performance targets and determining actual compensation levels based on evaluations against these targets (Gong, Li, and Shin [2011]). Thus, it has been almost impossible to conduct an empirical research in a large-dataset setting.

Due to a lack of detailed information, participative budgeting literature has used a field-based survey item to proxy for pertinent variables. Almost all of the extant research has used Milani's [1975] six-item scale (Shields and Shields [1998]) to measure participative budgeting, which attempts to assess the respondents' involvement in and influence on the budget process (Brownell [1982a], Brownell [1985], Chenhall [1986], Chenhall and Brownell [1988], Nouri and Parker [1998], Chong and Chong [2002a]). A sample item in Milani's [1975] instrument is: "The amount of influence that I have on the final budget". If a respondent checks 1 out of 7, that means "very little" involvement in and

influence on the budget process; if he or she checks 7 out of 7, that means "very much" involvement in and influence on the budget process. In addition, Anderson et al. [2010] use an introduction of a pay-for-performance plan within a privately held specialty retailer in the United States to proxy for the use of participative budgeting, which limits the generalizability of their results.

In addition, while previous studies highlight the importance of the use of *ex ante* benchmark against which actual performance or performance targets are compared, most studies depend on a self-rating survey item. In particular, in participative budgeting – performance relation literature, prior studies ask subordinates to evaluate their own actual performance relative to "superiors' expectations" to capture effort level (Govindarajan and Gupta [1985], Nouri and Parker [1998]). Similarly, in participative budgeting – slack literature, researchers measure budgetary slack by asking subordinates to evaluate their own best estimate of work performance relative to the budget (Young [1985], Chow, Cooper, and Waller [1988], Waller [1988], Fisher, Frederickson, and Peffer [2002]), whose findings could be substantially affected from unreliable survey responses.

Besides, the primary focus of participative budgeting studies has been on a variety of dependent variables that the use of participative budgeting affects, including performance (Brownell [1981], Brownell and Merchant [1990], Brownell and Dunk [1991]), job-related tension (Brownell and Hirst [1986], Harrison [1992], Lau, Low, and Eggleton [1995]), and budgetary slack (Onsi [1973], Dunk [1993]). However, participative budgeting literature has been relatively silent on the impact the use of participative budgeting has on performance-to-goal in bonus plans. "Performance-to-goal" is a critical

factor because bonus plans typically pay for actual performance relative to pre-established performance targets (Murphy [2001]).

One exception is a work by Anderson et al. [2010], who investigate data from a single firm that changes its bonus plan from a seniority-based bonus plan, where subordinates' cumulative prior-year bonuses are not at risk, to a pay-for-performance bonus plan including a participative budgeting scheme. They document that subordinates' performance-to-goal increases after they adopt a new bonus plan because 1) increased monetary incentives of pay-for-performance plan leads to greater performance effort and 2) subordinates in a participative budgeting setting exert effort toward both performance and downward goal negotiation. In other words, an increased performance-to-goal in their results is derived from both an introduction of a pay-for-performance plan and the use of participative budgeting. As pay-for-performance annual bonus plan is a widely used payout form for virtually every for-profit company (Kim and Shin [2015]), researchers need to distinguish the effects of the use of participative budgeting from increased monetary incentive effects due to an introduction of pay-for-performance bonus plan. This would reflect recent practice and generalize their results by examining the impact of adopting participative budgeting among firms that have already adopted pay-for-performance annual bonus plans.

Anderson et al. [2010] argue that performance-to-goal, defined as store sales minus sales goal in their study, increases after implementation of the new plan because postplan goals are more accurate than preplan goals. In particular, they document that the mean of performance-to-goal in the postplan period is closer to zero (-0.08 versus -0.24) than in the

preplan period. However, one might argue that the increase of performance-to-goal from -0.24 to -0.08 could also be interpreted as a mere increase of performance-to-goal due to an introduction of a pay-for-performance bonus plan including a participative budgeting scheme, not as getting closer to zero. In addition, their below-zero performance-to-goal imply that budgets are difficult to achieve. However, since firms allow achievable goals in practice for various reasons (Merchant and Manzoni [1989]), one could argue that Anderson et al. [2010]'s results may not represent an average firm.

2.2. Research Question

In spite of the importance of the performance-to-goal, the literature on participative budgeting has been relatively uninterested in the relation between the use of participative budgeting and performance-to-goal. Since Anderson et al. [2010] base their conclusions on data from a single firm where target difficulty is not descriptive of common practice, this study reexamines the impact of participative budgeting on performance-to-goal using a cross-sectionally diverse sample. Since subordinates have two mechanisms by which to increase performance-to-goal, namely effort toward performance and downward goal negotiation, I directly investigate which mechanism drives the difference in performance-to-goal, if any, between participative budgeting firms and non-participative budgeting firms. I present the first hypothesis as follows.

H1: Performance-to-goal is higher for participative budgeting firms than for non-participative budgeting firms.

2.3. The First Mechanism: The Effect of participative budgeting use on Effort toward Performance

Researchers have extensively examined whether the adoption of participative budgeting could ultimately increase firm performance. First, prior participative budgeting research documents motivation and cognitive mechanisms increasing job performance (Locke and Latham [1990], Kren [1992]). In particular, the participative mechanism motivates subordinates by instilling trust, a sense of control and ego-involvement. This leads to deeper acceptance and stronger commitment to budget decisions, and thus results in improved performance (Shields and Shields [1998], Anderson et al. [2010]). The cognitive mechanism highlights the improved quality of decisions as both superiors and subordinates are involved in a budget-setting process, in turn improving performance (Shields and Shields [1998]).

Second, participative budgeting also promotes information exchange among participants in budget-setting process Subordinates' budget proposals are generally known to reflect private information, such as market conditions (Baiman and Evans [1983], Murray [1990], Nouri and Parker [1998]). For example, Kren [1992] argue that subordinates' private information, referred to as "job-relevant information" in his study, facilitates job-related decision making. Specifically, he argues that job-relevant information can improve performance because it allows more accurate predictions of environmental changes and thus allows more effective selection of appropriate responses. In similar vein, Campbell and Gingrich [1986] document that in their experiment, participation in setting goals facilitates discussions with another expert (the superior),

equipping subordinates with more insightful and effective approaches to complex projects.

In this study, however, the compensation committee represents 'superiors' who may not have control over management decisions other than compensation-related matters. CEOs represent 'subordinates' at the other end of the process. Prior literature generally documents that for the "information exchange" role of participative budgeting to materially improve effort toward performance, superiors should benefit from subordinates' private information derived from their budget proposals. In this regard, Evans, Hannan, Krishnan, and Moser [2001] document that to the extent that subordinates truthfully communicate their private information in the budget, participative budgeting yields useful information for central management to use in production, marketing, and capital budgeting decisions (Douthit and Stevens [2015]). Since this is the first study to empirically investigate the use of participative budgeting in the compensation committee – CEO settings, whether participative budgeting improves performance through promoting information exchange even when CEOs are subordinates are subject to empirical tests.

Combining this motivational and cognitive mechanism and information exchange process, one could anticipate higher effort toward performance with participative budgeting. Specifically, I predict that if CEOs or executives are allowed to be involved with and have influence on targets, then they are more likely to commit to effort toward performance.

H2a: CEOs or executives who participate in budget-setting process are more likely to commit to effort toward performance.

2.4. The Second Mechanism: The Effect of participative budgeting use on Effort toward Downward Goal Negotiation

While many studies on participative budgeting highlight its positive motivational and informational roles, agency analyses assume that absent of truth-inducing contracts to do otherwise, subordinates will misrepresent their private information and will build slack into their target to maximize compensation (Rankin, Schwartz, and Young [2008], Douthit and Stevens [2015]). Young [1985] argues that a subordinate who has private information will build slack into the budget, emphasizing the importance of information asymmetry between subordinates and superiors. Baiman and Lewis [1989] argue that subordinates' effort to create slack budgets is to enhance their compensation prospects. Specifically, if subordinates view their rewards are based on budget attainment (i.e., high budget emphasis), they may generate slack budgets in the first place. In this regard, Jensen [2001, 96] argues that participative budgeting "distorts incentives, motivating people to act in ways that run counter to the best interests of their companies."

Contrary to traditional agency theory, experimental studies on participative budgeting suggest that honesty concerns cause subordinates to sacrifice wealth to generate (at least partially) honest reports (Evans, Hannan, Krishnan, and Moser [2001]). Honesty is defined as the tendency of subordinates to avoid making untrue factual assertions despite pecuniary incentives (Evans et al. [2001], Rankin et al. [2008], Douthit and Stevens [2015]). This view is consistent with subjects experiencing disutility from lying because each individual has a personal honesty threshold (Baiman and Lewis [1989]). Taken together, recent research in managerial accounting document that subordinates' opportunistic behavior would be lower than what is expected from economic theories (Krishnan, Marinich, and Shields [2012]).

Among experimental studies on honesty effects in participative budgeting settings, Rankin et al. [2008] document that less slack is created when budget communication requires a factual assertion from subordinates, but not when the superior has the final authority. In light of this paper's setting, where the compensation committee generally has the final authority on whether to accept or reject budget recommendations from CEOs, CEOs' honesty concerns would not have strong effects on their slack building activities. However, a recent study by Douthit and Stevens [2015] argue that even when the superior has rejection authority, honesty continues to have a strong effect on budgetary slack by giving the superior the ability to set the subordinate's salary. Subordinates expect their superiors to pay above-market wages in exchange for above-minimal effort, described as "gift exchange" behavior in prior studies. Since the compensation committee generally has the final authority in CEO compensation decisions, one can expect that slack-building activities would be minimized.

Economic and experimental studies on participative budgeting have differing views on subordinates' budgetary slack. Even within the experimental field, the effect of honesty concerns vary according to situational factors. Therefore, I present a null form hypothesis as follows:

H2b: CEOs or executives who participate in budget-setting process are not likely to create budgetary slack.

3. INSTITUTIONAL BACKGROUND AND SAMPLE SELECTION

3.1. The New SEC Disclosure Rules on Executive Compensation

As of December 15, 2006, the SEC amended its regulation on executive

compensation to require more disclosure. Specifically, firms are required to disclose their performance measures and performance goals, along with their actual performance determined at the end of fiscal year. The new disclosure rules were designed to increase the transparency of executive compensation contracts, reflecting increased media and shareholder scrutiny of executive pay following practices on setting excessive pay (Gong et al. [2011]).

By using performance goals and actual performance details in annual bonus plans disclosed in the "Compensation Discussion and Analysis (CD&A)" section of proxy statements, I calculate the performance-to-goal measure as a ratio of the actual performance to the performance target. I hand-collected this information for sample firms for the 2009-2011 period, which constitutes the sample period of this study.

3.2. Sample Construction and Descriptive Statistics

I determine the use of participative budgeting in annual incentive plans by reading CD&A reports. In particular, I begin by reading a section named "role of chief executive officer" (the title of the section under which pertinent information is disclosed varies with firms, e.g., "role of management") and identify participative budgeting firms as firms in which CEO or executives participate in the budget-setting process. Then, to ensure that the use of participative budgeting applies to setting performance targets for the annual bonus, not the other components of executive compensation (e.g., restricted stock, stock option), I check "annual incentive plans" to confirm that CEO or executives are involved in the target-setting process of the annual bonus plans.

To be conservative, I only classify a firm as a participative budgeting entity only if a firm explicitly discloses the use of participative budgeting. I observe two types of participative budgeting firms where targets could be either 1) determined based on board-approved business plans (annual budgets) or 2) recommended by CEO or executives for evaluation purposes. In particular, firms using targets based on board-approved business plans share budgets, or at least use budgets of great similarity, for planning and performance evaluation purposes, whereas firms in which targets are recommended by CEO or executives use separate budgets for the conflicting planning and performance evaluation purposes. I define both types of firms as participative budgeting firms. Whether each type of participative budgeting firms differ in their behavior is left for future analysis. If a firm does not disclose the use of participative budgeting explicitly, or do not disclose explicitly who decides targets, then the firm is classified as a non-participative budgeting entity.

Appendix A offers detailed coding criteria and representative proxy disclosures about participative budgeting in this study. I define AETNA INC NEW as a participative budgeting firm because its 2009 proxy statement articulates that the [compensation] committee establishes specific financial and operational goals at the beginning of each performance year "after consulting with the Board." I regard the expression "after consulting with the Board" as evidence of participative budgeting. On the contrary, I classify SYMANTEC CORP as a non-participative budgeting entity because its proxy statement does not disclose the use of participative budgeting explicitly other than the information that "the compensation committee establishes specific

operating and/or financial performance goals."

Specifically, I take particular care not to confuse the concept of participation in setting the amount or form of compensation as participation in a target-setting process. According to CD&A reports, many firms generally stipulate that CEO or any executive is excluded from the decisions regarding his or her own compensation, reflecting media and shareholder concerns on excessive pay. Whether or not CEO or executives are allowed to recommend his or her own compensation to the compensation committee does not affect my judgment on whether a specific firm is a participative budgeting firm or not. I assume that firms have little reason to behave strategically in their disclosure of participative budgeting. Unlike the determination of compensation levels, investors would be less interested in the CEO or management involvement in setting budgets.

I hand-collect the use of participative budgeting for annual bonus plans from S&P 1500 companies' annual proxy statements (DEF-14A) for fiscal year 2009 to 2011, which were identified as of fiscal year 2009. Panel A of Table 1 describes the sample selection process. With 4,500 possible firm year observations, 430 observations were deducted due to missing years. Out of 4,070 firm year observations, I restrict sample firm years to ones that use EPS as one of the performance measures in annual bonus plans. Because EPS targets and actual performance information are essential for calculating performance-to-goal, firm year observations that lack EPS targets or actual performance data are also deducted. In addition, 33 firm year observations that use EPS growth measures and 82 firm year observations that lack firm characteristic and CEO attribute variables are excluded from the sample, along with the loss of 29 firm year observations due to IBES dataset merge.

My final sample consists of 633 firm year observations with available proxy statements.

Panel B of Table 1 presents a breakdown of the firm year observations by year. This breakdown presents a relatively similar number of firm year observations each year, showing 29%, 34%, and 37% of the sample each year. Panel C of Table 1 reports that 386 (about 61 percent) of the firm year observations use participative budgeting. 247 firm year observations (about 39 percent) are classified as a non-participative budgeting entity.

[Insert Table 1 About Here]

4. RESEARCH DESIGN, SUMMARY STATISTICS, AND EMPIRICAL RESULTS

4.1. Research Design

In this section, I investigate the extent to which the use of participative budgeting affects my main dependent variable, performance-to-goal. To examine the impact of participative budgeting use on EPS performance-to-goal, we model EPS performance-to-goal as a function of the use of participative budgeting after controlling for firm characteristics and CEO attributes influencing EPS performance-to-goal. The regression model is as follows:

$$P\text{-}to\text{-}G_t = \alpha_0 + \alpha_1 PB_t + \alpha_2 ln\_Asset_t + \alpha_3 Leverage_t + \alpha_4 BTM_t + \alpha_5 Ln\_BIZSEG_t + \alpha_6 Return\ Volatility_t + \alpha_7 Equity\ Comp\ Ratio_t + \alpha_8 CEO\ Age_t + \alpha_9 New\ CEO_t + \alpha_{10} Ln\_ceotenure_t + Industry\ Effects + Year\ Effects + e_t \quad (1)$$

In equation (1), the dependent variable, *P-to-G*, is defined as the ratio of EPS actual performance relative to EPS performance target set in the beginning of the fiscal year. My main test variable, *PB*, is an indicator variable that equals 1 if a firm uses participative

budgeting, 0 otherwise. I include a firm's total asset (*ln_asset*) to control for firm size, and the ratio of a firm's total debt relative to total assets (*Leverage*) to proxy for a firm's risk characteristics. To control for the possibility that high-growth firms are more likely to achieve their targets, I include book-to-market ratio (*BTM*). The complexity of business portfolio, *Ln_BIZSEG*, is included since achievability of performance targets is expected to increase steadily in that below-expectation performance in one business portfolio could be complemented with gains from performance in other business portfolios. *Ln_BIZSEG* is defined as the natural logarithm of the number of business segments. Stock return volatility (*Return Volatility*) is included to proxy for a noisier environment.

The ratio of equity compensation to total compensation, *Equity comp ratio*, is included to control for the possibility that CEOs whose equity compensation is higher than that of other CEOs are less likely to care about achievability of performance targets in annual bonus plans. CEO age (*CEO Age*) and CEO tenure (*Ln_ceotenure*) variables are also included to examine whether experienced CEOs are more likely to achieve performance targets in annual bonus plans. Alternatively, CEO age and CEO tenure can also proxy for entrenched CEOs who are less likely to be dismissed for poor performance. An indicator variable that CEO is newly appointed during the year is included to examine the competence of newly appointed CEOs. Alternatively, newly appointed CEOs could also proxy for the fact that they are more likely to take a big bath during the year they start their new post.

In what follows, I investigate the two mechanisms by which to increase performance-to-goal by decomposing performance-to-goal using analysts' forecasts.

Specifically, I decompose EPS performance-to-goal as $\frac{Actual\ Performance}{Performance\ Target} = \frac{Actual\ Performance}{Benchmark} \times \frac{Benchmark}{Performance\ Target}$. The ratio of actual performance to benchmark measures effort level (*EL*), while the ratio of benchmark to performance target measures budgetary slack (*BS*). Here, I use analysts' forecasts as benchmark since analysts' forecasts represent market expectation at the time performance targets are set within the firm. If the ratio of actual performance to benchmark is higher for participative budgeting firms than for non-participative budgeting firms, this means CEO or executives in participative budgeting firms commit to more effort than those in non-participative budgeting firms, since higher ratio of actual performance to benchmark is interpreted as higher actual performance. If the ratio of benchmark to performance target is higher for participative budgeting firms than for non-participative budgeting firms, this means that CEO or executives in participative budgeting firms purposely create slack budgets to lower performance targets, which surface as a higher ratio of benchmark to performance targets.[1]

[1] As with my budgetary slack (*BS*) variable, Kim and yang [2010] measures a difference between EPS analysts' forecasts and EPS performance targets by subtracting performance targets from analysts' forecasts and finds that EPS performance targets are set lower than analysts' forecasts on EPS performance. Yet, it could be problematic to directly compare between analysts' forecasts and performance targets because analysts' forecasts are generally known to be optimistically biased (O'Brien [1988], Brown [2001]). However, unlike Kim and Yang [2010], this study does not examine the direct relationship between analysts' forecasts and performance targets. Therefore, the ratio of analysts' forecasts to performance targets could differ between participative budgeting firms and non-participative budgeting firms even after considering the optimistic bias of analysts' forecasts, assuming that the degree of bias does not differ considerably between participative budgeting firms and non-participative budgeting firms. Similarly, one might argue that analysts' forecasts affect performance targets, as the compensation committee may refer to analysts' forecasts when setting targets. Despite this possibility, the main focus on the dimension of participative budgeting remains valid. The ratio of analysts' forecasts to performance targets may differ between participative budgeting firms and non-participative budgeting firms despite the possible bias. Once again, I assume that the extent to which analysts' forecasts affect performance targets does not differ considerably between participative budgeting firms and non-participative

For my benchmark, I use the three-month average of prevailing analysts' forecasts issued 10 to 8 months prior to fiscal year end. For example, if a firm's fiscal year ends at December, the benchmark is calculated as the three-month average of prevailing analysts' forecasts issued in February, March, and April during the year. For comparison, Kim and yang [2010] define *analyst consensus* as the three-month average of prevailing analysts' forecasts in the first quarter (i.e., from January to March for a firm with fiscal year ending at December). The reason for this one-month difference from Kim and yang [2010] is that analysts' forecasts are assumed to be more accurate if prior year performance information of a firm and its peers are considered, which is disclosed after two to three months following the prior year fiscal year end. As a result, I assume that analysts' forecasts disclosed one month after prior year fiscal year end would be less likely to be accurate than those disclosed after two to three months following prior year fiscal year end. For robustness tests, I use different horizons to calculate analysts' forecasts. Figure 1 provides an example of the horizons of analysts' forecasts benchmark. The regression model is as follows:

[Insert Figure 1 About Here]

$$EL(-10,-8)_t = \alpha_0 + \alpha_1 PB_t + \alpha_2 BS(-10,-8)_t + \alpha_3 ln\_Asset_t + \alpha_4 Leverage_t + \alpha_5 BTM_t + \alpha_6 Ln\_BIZSEG_t + \alpha_7 Return\ Volatility_t + \alpha_8 Equity\ Comp\ Ratio_t + \alpha_9 CEO\ Age_t + \alpha_{10} New\ CEO_t + \alpha_{11} Ln\_ceotenure_t + Industry\ Effects + Year\ Effects + e_t \quad (2)$$

$$BS(-10,-8)_t = \alpha_0 + \alpha_1 PB_t + \alpha_2 ln\_Asset_t + \alpha_3 Leverage_t + \alpha_4 BTM_t + \alpha_5 Ln\_BIZSEG_t + \alpha_6 Return\ Volatility_t + \alpha_7 Equity\ Comp\ Ratio_t + \alpha_8 CEO\ Age_t + \alpha_9 New\ CEO_t + \alpha_{10} Ln\_ceotenure_t + Industry\ Effects + Year\ Effects + e_t \quad (3)$$

budgeting firms. Nevertheless, I acknowledge that a potential bias in analysts' forecasts might bias my results.

In equation (2) and (3), the dependent variable *EL(-10,-8)* and *BS(-10,-8)* use benchmark defined as the three-month average of prevailing analysts' EPS forecasts issued 10 to 8 months prior to fiscal year end. Equation (2) and (3) use the same control variables as in Equation (1), except that the budgetary slack variable, *BS(-10,-8)*, is controlled in Equation (2). One should note that higher budgetary slack represents easier targets to achieve. A large stream of goal-setting theory maintains that presence of targets and their difficulty strongly influence effort (Locke and Latham [2002]). Indjejikian, Matějka, Merchant, and Van der Stede [2014b] also argue that managerial choice of effort is a function of expected compensation that is driven by the likelihood of achieving a performance target. In addition, a recent experimental research shows that individuals with challenging targets and/or performance-based pay have higher productivity per production efficiency (Webb, Williamson, and Zhang [2013]). To examine whether the use of participative budgeting still has a significant impact on effort level after controlling for target difficulty, I control for budgetary slack in Equation (2), since budgetary slack determined at the beginning of the year is assumed to affect effort level during the rest of the fiscal year.

4.2. Summary Statistics

Table 2 provides descriptive statistics on firm characteristics and CEO attributes for the sample firms. All continuous variables are winsorized at 1st and 99th percentiles. See Appendix B for the variable definitions. Panel A in Table 2 presents summary statistics on actual performance, targets, and benchmark. The mean EPS actual performance is

$2.589, $2.463 for the mean EPS targets, and $2.340 for the mean analysts' forecasts. This is descriptive of a performance-to-goal above 1, suggesting that firms are more likely to achieve their targets. This result is consistent with Merchant and Manzoni [1989] that managers are given easy targets for various reasons.

As shown, firms that disclose the use of participative budgeting in annual bonus plans differ from non-participative budgeting firms along many dimensions. Most importantly, the mean and median EPS performance-to-goal of participative budgeting firms are significantly higher than of non-participative budgeting firms (1.114 versus 1.040 for mean, 1.059 versus 1.031 for median), suggesting a simple result on the test for hypothesis 1 that performance-to-goal for participative budgeting firms is higher than for non-participative budgeting firms. In addition, effort level metric, *EL(-10,-8),* is significantly higher for participative budgeting firms, while budgetary slack metric, *BS(-10,-8),* for participative budgeting firms does not differ from that for non-participative budgeting firms. This is suggestive of an interpretation that higher effort level results in higher EPS performance-to-goal for participative budgeting firms, not the effect of budgetary slack.

Beside performance-to-goal, effort level, and budgetary slack variables, participati ve budgeting firms are more likely to be small and use more debt. In addition, CEOs in participative budgeting firms are offered a smaller equity-based compensation co mpared to those in non-participative budgeting firms. I delve into the differences of *P-to-G* related variables, firm characteristics, and CEO attributes between participativ e budgeting firms and non-participative budgeting firms by looking at regression resu

lts next section.

[Insert Table 2 About Here]

[Insert Table 3 About Here]

4.3. Empirical Results

Table 4 presents results from the estimation of Equation (1), (2), and (3) using *P-to-G, EL(-10,-8), BS(-10,-8)* as dependent variables, respectively. In column (1), the dependent variable is *P-to-G*, and the key explanatory variable, *PB*, is significantly positive after controlling after firm characteristics and CEO attributes. This suggests that participative budgeting firms' EPS performance-to-goal is significantly larger than that of non-participative budgeting firms. This result is consistent with Anderson et al. [2010]. The coefficient on *Equity Comp Ratio* is significantly negative, suggesting that CEOs whose equity compensation is higher than that of other CEOs shows lower EPS performance-to-goal in their annual bonus plans. In addition, the coefficient on *Leverage* is negatively associated, albeit marginally, with EPS performance-to-goal, suggesting that risky firms are less likely to achieve their EPS performance-to-goal.

In column (2), the dependent variable is *EL(-10,-8)*, and consistent with H2(a), the coefficient on PB is significantly positive. This suggests that CEOs of participative budgeting firms show a greater deal of effort compared to those of non-participative budgeting firms. In addition, the coefficient on *BS(-10,-8)* is significantly negative, consistent with challenging targets motivating CEOs to have positively impact on their effort level. This result empirically confirms goal-setting theory that the presence of targets

and their difficulty strongly affects effort (Locke and Latham [2002]). The coefficient on *Leverage* is significantly negative, suggesting that risky firms are less likely to show higher level of actual performance. Consistent with the prediction, CEOs whose equity compensation is higher shows lower, albeit marginal, effort level.

In column (3), the dependent variable is *BS(-10,-8),* and my key explanatory variable, *PB,* is not significant. This suggests that CEOs who are allowed to be involved with and have influence on performance targets are not likely to engage in slack-building activities, consistent with H2b in a null form. This result reaffirms the continued popularity of participative budgeting as an organizational control tool in that the use of participative budgeting is highly motivational, yet has little impact on CEOs' rent extraction activities, such as budgetary slack (Shields and Shields [1998], Libby and Lindsay [2010], Douthit and Stevens [2015]).

I additionally conduct test for whether an increase in performance-to-goal of participative budgeting firms is driven by increased goal accuracy, as suggested by Anderson et al. [2010]. The mean of performance-to-goal approaching zero and decreased standard deviation of performance-to-goal following the adoption of a new pay-for-performance bonus plan in participative budgeting setting is suggested as evidence of increased goal accuracy. I redefine performance-to-goal as actual EPS performance minus EPS target. In an untabulated analysis, actual EPS performance is 16 cents higher than the EPS performance target for participative budgeting firms, whereas actual EPS performance is 10 cents higher than the EPS target for non-participative budgeting firms. This result runs against Anderson et al. [2010] who argue that the mean of performance-

to-goal, defined as actual performance minus target in their study, gets closer to zero. This paper's results suggest that the mean of actual performance minus target is farther from zero for participative budgeting firms than for non-participative budgeting firms. In addition, I examine whether the standard deviation of performance-to-goal for participative budgeting firms is significantly lower. In an untabulated analysis, the standard deviation of my newly defined performance-to-goal, actual EPS performance minus EPS target, is lower for participative budgeting firms than that for non-participative budgeting firms (0.516 versus 0.567), but Levene's test of equality of variance reports that the result is not significant (p-value: 0.1712). Taken together, my result differs from Anderson et al. [2010] who suggest that the goal accuracy for participative budgeting firms is higher than that for their counterparts. Instead, I argue that increased effort level drives an increase in performance-to-goal for participative budgeting firms.

[Insert Table 4 About Here]

4.4. Robustness Tests

Table 5 presents robustness tests for the results of Table 4. I use different benchmark horizons to calculate effort level and budgetary slack variables as the dependent variables. Specifically, *EL(-11,-9)* and *BS(-11,-9)* are calculated by defining the benchmark as the three-month average of prevailing analysts' EPS forecasts issued 11 to 9 months prior to fiscal year end, consistent with Kim and yang [2010] who define analyst consensus as the average of prevailing analysts' forecasts issued in the first quarter of the year. Similarly,

EL(-13,-8) and *BS(-13,-8)* (*EL(-14,-9)* and *BS(-14,-9)*) use benchmarks defined as the six-month average of prevailing analysts' EPS forecasts issued 13 to 8 (14 to 9) months prior to fiscal year end. From column (1) to column (6), the results are generally consistent with the results of Table (4). The coefficient on *PB* is significantly positive in column (1), (3), and (5), while the coefficient on *PB* is not significant in column (2), (4), and (6). In addition, the coefficient on budgetary slack is significantly negative on effort level regressions except column (6) that uses *EL(-14,-9)* as a dependent variable. Taken together, my robustness tests generally confirms the findings of Table 4.

[Insert Table 5 About Here]

5. CONCLUSION

Despite the continued popularity of participative budgeting, the literature on participative budgeting has been silent on empirical studies. The lack of information on the use of participative budgeting has forced prior studies to depend on proprietary survey data, laboratory experimental evidence, or data from single firms with multi-business units.

I provide the first large-sample evidence on the use of participative budgeting and its relation with performance-to-goal based on S&P 1500 firms' proxy statements. Using a subset of S&P 1500 firms that use EPS as one of the performance measures in annual bonus plans, I demonstrate that EPS performance-to-goal is higher for participative budgeting firms than for non-participative budgeting firms. Next, I examine whether higher performance-to-goal is driven by motivational effects or slack building activities triggered by the use of participative budgeting. I find that higher EPS performance-to-goal is driven

by improved effort level, and that EPS targets are not made lower by the use of participative budgeting, suggesting that CEOs' slack building activities are not pervasive in the compensation committee – CEO settings.

One limitation of my analyses is that I am unable to identify firms that use participative budgeting implicitly without disclosing such information. The quality of the disclosed information on participative budgeting vary significantly across firms. This study serves as the first step to understand participative budgeting and its effects on incentive plans, thus, there is much room for us to expand to other related issues on target-setting literature, for example, target ratcheting. The academic literature has yet to explore such interactions.

APPENDIX A: CODING CRITERIA AND EXAMPLES OF DISCLOSURES ABOUT PARTICIPATIVE BUDGETING

Example of Participative Budgeting Firms

1) **Targets determined based on board-approved business plans (annual budgets)**

- Excerpt from **Sherwin Williams CO**'s 2011 proxy statement

Role of Management

With regard to executive compensation, **management generally makes recommendations to the Compensation Committee and plays a more active role in the compensation process.** Management makes recommendations relating to the development of compensation plans and programs and changes to existing plans and programs. **Management also makes recommendations with respect to** the evaluation of executive performance, salary increases, **the performance goals and weightings for annual cash incentive compensation**, the financial performance goals for grants of restricted stock, the results attained with respect to performance goals, and the number of stock options and shares of restricted stock granted.

Annual Cash Incentive Compensation

Annual Performance Goals. **For 2011, the Compensation Committee reviewed our annual operating budget and approved target financial performance goals that were set at levels that were of the same magnitude as set forth in our 2011 annual operating budget.** Financial performance goals also reflect pro-forma projections related to our acquisition of Leighs Paints in July 2011. We set challenging performance goals – the target levels for most of the 2011 financial performance goals were set at levels that showed improvement over 2010 actual results. Maximum levels of performance goals are intended to require significant effort to reach.

2) **Targets recommended by CEO or executives for evaluation purposes**

- Excerpt from **AETNA INC NEW**'s 2009 proxy statement

How are annual performance-based bonuses determined?

Annual bonuses are paid in cash. **All executive officers and managers are eligible to participate in the Annual Bonus Plan ("ABP"). The Committee, after consulting with the Board, establishes specific financial and operational goals at the beginning of each performance year, and annual bonus funding is linked directly to the achievement of these annual goals.** Following the completion of the performance year, the Committee assesses performance against the pre-established performance goals to determine bonus funding for the year. The ABP goals, described in more detail below, are directly derived from our strategic and business

operating plan approved by the Board. These goals, which measure annual results, require performance to be balanced between delivering financial results and achieving internal and external constituent goals. The Company believes it is important to consider these non-financial constituent goals, which have a 20% ABP weighting, because they help keep a focus on our longer-term success and the quality of our brand and reputation, rather than strict annual financial results.

Example of Non-Participative Budgeting Firms

1) **Targets determined by the compensation committee**

- Excerpt from **SYMANTEC CORP**'s 2010 proxy statement

Semi-Annual Incentive Compensation

Performance Goal and Achievement Levels. Shortly after the start of each semi-annual performance period, **the Compensation Committee establishes specific operating and/or financial performance goals to correspond to specific ICP achievement levels ranging between 0% and 200% of the target bonus opportunity for executive officers.** For both the first half and second half of fiscal 2010, **the Compensation Committee selected earnings per share as the financial measure for the ICP**. For fiscal 2010, earnings per share was calculated under generally accepted accounting principles. **The Compensation Committee selected earnings per share as the appropriate performance goal for the fiscal 2010 ICP because it believed earnings per share closely reflects our overall performance and profitability and the returns achieved by our stockholders.** The Compensation Committee believes that the ICP assists in achieving our compensation objectives of motivating executives to improve our overall performance and profitability and tying incentive awards to financial metrics that drive the performance of our common stock over the long term.

2) **No reference on whom decides targets**

- Excerpt from **PRECISION CASTPARTS CORP**'s 2011 proxy statement

Base Salaries, Annual Performance-Based Cash Bonuses and Stock Options

Performance-Based Cash Bonuses. The Company utilizes annual performance-based cash bonuses to motivate and reward executive officers for the achievement of Company or operating unit annual performance targets. The performance criteria applicable to each NEO differ based on the portion of the Company's operations for which the NEO is responsible. Target bonus levels as a percentage of base salary are pre-determined based on NEOs' positions with the Company. No bonus is payable under any of the Company's bonus plans if the performance result is less than 80% of targeted performance, and the maximum bonus payout is 250% of an individual's target bonus. All performance criteria under the Company's bonus plans are adjusted to eliminate the effects of acquisitions not included in the fiscal year budget, accounting changes, the difference between planned and actual currency exchange rates, and restructuring and asset impairment charges (referred to below as the "Standard Adjustments").

APPENDIX B

Variable Definitions

Variable	Description
P-to-G =	ratio of EPS actual performance relative to EPS performance target set in the beginning of the year;
EL(-10,-8) =	ratio of EPS actual performance relative to the three-month average of prevailing analysts' EPS forecasts issued 10 to 8 months prior to fiscal year end;
EL(-11,-9) =	ratio of EPS actual performance relative to the three-month average of prevailing analysts' EPS forecasts issued 11 to 9 months prior to fiscal year end;
EL(-13,-8) =	ratio of EPS actual performance relative to the six-month average of prevailing analysts' EPS forecasts issued 13 to 8 months prior to fiscal year end;
EL(-14,-9) =	ratio of EPS actual performance relative to the six-month average of prevailing analysts' EPS forecasts issued 14 to 9 months prior to fiscal year end;
BS(-10,-8) =	ratio of the three-month average of prevailing analysts' EPS forecasts issued 10 to 8 months prior to fiscal year end relative to EPS performance target set in the beginning of the year;
BS(-11,-9) =	ratio of the three-month average of prevailing analysts' EPS forecasts issued 11 to 9 months prior to fiscal year end relative to EPS performance target set in the beginning of the year;
BS(-13,-8) =	ratio of the six-month average of prevailing analysts' EPS forecasts issued 13 to 8 months prior to fiscal year end relative to EPS performance target set in the beginning of the year;
BS(-14,-9) =	ratio of the six-month average of prevailing analysts' EPS forecasts issued 14 to 9 months prior to fiscal year end relative to EPS performance target set in the beginning of the year;
PB =	1 if a firm discloses the use of participative budgeting, 0 otherwise;
Ln_asset =	natural logarithm of total assets;
Leverage =	total debt divided by total assets;
BTM =	book-to-market ratio at fiscal-year-end;
Ln_BIZSEG =	natural logarithm of the number of business segments;
Return Volatility =	standard deviation of monthly compounded annual stock returns (*Return*) over five years (*t*-5 to *t*-1);
Equity Comp Ratio =	ratio of long-term variable pay to total compensation;
CEO Age =	1 if CEO age is over 65, 0 otherwise;
New CEO =	dummy variable indicating change in CEO during the year;
Ln_ceotenure =	natural logarithm of the years since date became CEO;

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FIGURE 1: The Horizons of Analysts' Forecasts Benchmark used in Effort Level and Budgetary Slack variables (An example of a firm with fiscal year ending December)

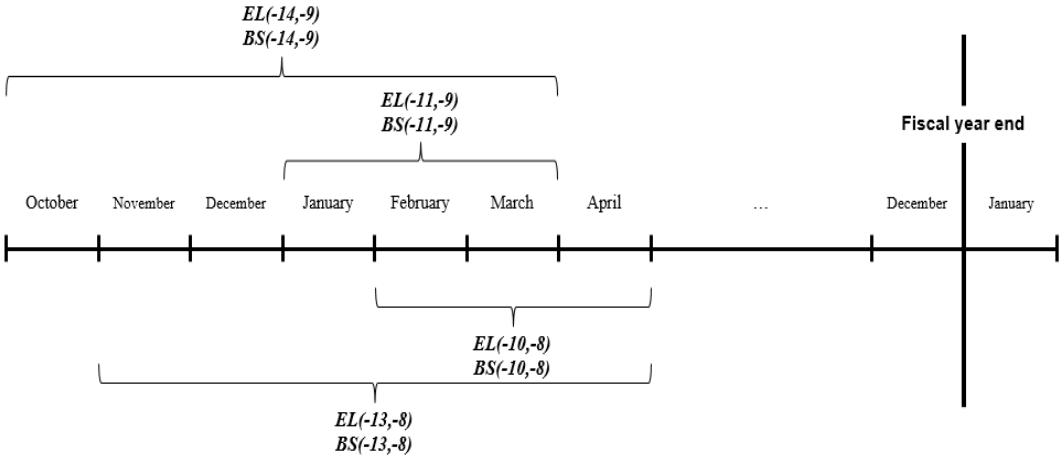

TABLE 1: Sample selection and Participative Budgeting Use by Type

Panel A: Sample selection

S&P1500 Firm years	4,500
Less firm years with missing years	(430)
Less firm years that do not use EPS as one of the performance measures or that lack EPS target/Actual information	(3,293)
Less firm years using EPS growth measures	(33)
Less firm years that lack firm characteristic and CEO attribute variables	(82)
Less firm years with missing variables due to IBES dataset merge	(29)
Final sample firm-years	**633**

Panel B: Sample distribution by year

Year	**Frequency**	**Percent**
2009	184	29%
2010	217	34%
2011	232	37%
Total firm-years	**633**	**100%**

Panel C: Participative Budgeting Use by Type

Year	**Number of Firm-years**	**Percent**
Participative Budgeting Firms	**386**	**60.98%**
Targets determined based on board-approved business plans(annual budgets)	205	32.39%
Targets recommended by CEO or executives for evaluation purposes	181	28.59%
Non-Participative Budgeting Firms	**247**	**39.02%**
Targets determined by the Compensation Committee, consultants, or others	209	33.02%
No reference on whom decides targets	38	6.00%
Total firm-years	**633**	**100%**

TABLE 2: Descriptive statistics

Panel A: Descriptive statistics of the sample

Measure	N	Mean	Stdev	Min	Q1	Median	Q3	Max
EPS_actual	633	2.589	1.620	0.210	1.430	2.270	3.390	8.390
EPS_target	633	2.463	1.499	0.250	1.370	2.200	3.150	7.520
EPS_benchmark	633	2.340	1.572	-0.173	1.240	2.050	3.037	8.133
PB	633	0.610	0.488	0.000	0.000	1.000	1.000	1.000
P-to-G	633	1.085	0.299	0.314	0.982	1.046	1.151	2.636
EL(-10,-8)	633	1.151	0.835	-3.387	0.966	1.048	1.199	4.579
BS(-10,-8)	633	0.990	0.417	-0.092	0.918	1.000	1.043	3.231
Ln_asset	633	8.406	1.527	5.505	7.244	8.464	9.391	12.334
Leverage	633	0.560	0.178	0.133	0.434	0.562	0.689	1.003
BTM	633	0.522	0.286	0.000	0.323	0.479	0.685	1.401
Ln_BIZSEG	633	1.485	0.461	0.693	1.386	1.609	1.792	2.398
Return Volatility	633	0.095	0.033	0.039	0.071	0.092	0.115	0.196
Equity Comp Ratio	633	0.494	0.207	0.000	0.390	0.530	0.639	0.852
CEO Age	633	0.087	0.282	0.000	0.000	0.000	0.000	1.000
New CEO	633	0.073	0.260	0.000	0.000	0.000	0.000	1.000
Ln_ceotenure	633	2.020	0.655	0.693	1.609	1.946	2.485	3.526

Panel B: Mean and Median Differences between PB firms and non-PB firms

	PB firms (n = 386)		Non-PB firms (n = 247)			
	Mean	**Median**	**Mean**	**Median**	**Mean Differences**	**Median Differences**
P-to-G metrics						
P-to-G	1.114	1.059	1.040	1.031	0.074***	0.028***
Effort Level(EL) metrics						
EL(-10,-8)	1.228	1.061	1.029	1.030	0.199***	0.031**
Target Easiness(TE) metrics						
BS(-10,-8)	0.983	1.000	1.000	1.003	-0.017	-0.003
Firm Characteristics						
Ln_asset	8.282	8.371	8.600	8.561	-0.318**	-0.190
Leverage	0.566	0.590	0.549	0.524	0.017	0.066***
BTM	0.528	0.486	0.511	0.463	0.017	0.023
Ln_BIZSEG	1.490	1.609	1.477	1.609	0.013	0.000*
Return Volatility	0.095	0.092	0.095	0.091	0.000	0.001
CEO Attributes						
Equity Comp Ratio	0.476	0.519	0.522	0.540	-0.046***	-0.021
CEO Age	0.093	0.000	0.077	0.000	0.016	0.000
New CEO	0.067	0.000	0.081	0.000	-0.014	0.000
Ln_ceotenure	2.023	2.079	2.015	1.946	0.008	0.133

TABLE 3
Pearson Correlation Matrix

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*
(1)PB	1.00												
(2)P-to-G	0.12***	1.00											
(3)EL(-10,-8)	0.12***	0.26***	1.00										
(4)BS(-10,-8)	-0.02	0.16***	-0.17***	1.00									
(5)Ln_asset	-0.10**	-0.07*	-0.13***	0.08**	1.00								
(6)Leverage	0.05	-0.10**	-0.08**	0.00	0.37***	1.00							
(7)BTM	0.03	0.03	-0.15***	0.07*	0.12***	-0.08**	1.00						
(8)Ln_BIZSEG	0.01	-0.03	0.02	0.01	0.32***	0.20***	0.06	1.00					
(9)Return Volatility	0.00	0.16***	0.00	-0.08**	-0.46***	-0.23***	0.16***	-0.27***	1.00				
(10)Equity Comp Ratio	-0.11***	-0.18***	-0.10**	0.02	0.31***	0.05	-0.05	0.02	-0.15***	1.00			
(11)CEO Age	0.03	-0.01	-0.08**	-0.07*	-0.07*	-0.09**	0.08*	0.02	0.08**	-0.13***	1.00		
(12)New CEO	-0.03	0.01	-0.01	0.02	0.09**	0.03	0.12***	0.05	-0.01	0.04	-0.06	1.00	
(13)Ln_ceotenure	0.01	-0.01	0.03	-0.01	-0.16***	-0.14***	-0.08**	-0.03	0.04	-0.11***	0.32***	-0.53***	1.00

The symbols *, **, and *** correspond to 10 percent, 5 percent, and 1 percent significance levels, respectively.

TABLE 4: Regression of Participative Budgeting Use in Annual Bonus Plans

VARIABLES	(1) P-to-G	(2) EL(-10,-8)	(3) BS(-10,-8)
PB	0.050**	0.175***	-0.051
	(2.22)	(2.93)	(-0.87)
BS(-10,-8)		-0.585***	
		(-3.65)	
Ln_asset	0.012	0.017	0.023
	(1.02)	(0.61)	(1.46)
Leverage	-0.192*	-0.656***	-0.165
	(-1.89)	(-2.62)	(-0.88)
BTM	-0.034	-0.104	0.158*
	(-0.70)	(-0.78)	(1.66)
Ln_BIZSEG	0.005	0.035	-0.022
	(0.20)	(0.54)	(-0.55)
Return Volatility	1.170*	1.506	-0.863
	(1.91)	(0.90)	(-0.94)
Equity Comp Ratio	-0.284***	-0.291*	0.004
	(-3.87)	(-1.67)	(0.03)
CEO Age	-0.067	-0.090	-0.015
	(-1.64)	(-0.77)	(-0.27)
New CEO	0.012	0.023	0.008
	(0.23)	(0.20)	(0.08)
Ln_ceotenure	-0.012	-0.077	-0.013
	(-0.45)	(-1.09)	(-0.30)
Industry and Year fixed effects	Yes	Yes	Yes
Constant	1.063***	1.752***	0.981***
	(8.50)	(4.67)	(5.01)
Observations	633	633	633
Adjusted R-squared	0.123	0.350	0.114

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

TABLE 5: Regressions of Effort Level and Budgetary Slack on Participative Budgeting Use using Various Benchmark Horizons

VARIABLES	(1) EL(-11,-9)	(2) BS(-11,-9)	(3) EL(-13,-8)	(4) BS(-13,-8)	(5) EL(-14,-9)	(6) BS(-14,-9)
PB	0.124*	-0.056	0.118*	-0.053	0.327**	-0.056
	(1.70)	(-0.77)	(1.68)	(-0.73)	(1.97)	(-0.74)
BS(-11,-9)	-0.659***					
	(-2.87)					
BS(-13,-8)			-0.489**			
			(-2.04)			
BS(-14,-9)					-0.445	
					(-1.33)	
Ln_asset	-0.045	0.017	0.020	0.013	-0.053	0.009
	(-0.80)	(0.89)	(0.30)	(0.72)	(-0.76)	(0.48)
Leverage	-0.503*	-0.006	-0.626**	-0.013	0.682	-0.012
	(-1.89)	(-0.03)	(-2.16)	(-0.06)	(0.91)	(-0.06)
BTM	-0.428**	0.234**	-0.683*	0.246**	0.350	0.271**
	(-2.03)	(2.05)	(-1.82)	(2.19)	(0.81)	(2.36)
Ln_BIZSEG	0.028	-0.039	0.037	-0.032	0.025	-0.023
	(0.37)	(-0.86)	(0.46)	(-0.72)	(0.25)	(-0.49)
Return Volatility	5.562*	-1.323	9.697	-1.413	8.071	-1.546
	(1.86)	(-1.19)	(1.44)	(-1.27)	(0.95)	(-1.33)
Equity Comp Ratio	0.275	-0.060	0.089	-0.070	-0.452	-0.091
	(0.77)	(-0.37)	(0.35)	(-0.44)	(-1.14)	(-0.56)
CEO Age	-0.044	-0.017	-0.041	-0.017	-0.084	-0.024
	(-0.29)	(-0.27)	(-0.25)	(-0.28)	(-0.18)	(-0.36)
New CEO	0.036	-0.014	0.039	-0.015	-0.189	-0.005
	(0.14)	(-0.13)	(0.21)	(-0.14)	(-0.70)	(-0.05)
Ln_ceotenure	-0.127	0.011	-0.075	0.007	-0.091	0.003
	(-1.00)	(0.21)	(-0.63)	(0.14)	(-0.67)	(0.06)
Industry and Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.781***	1.032***	0.765	1.082***	-3.928*	1.163***
	(3.07)	(4.71)	(0.58)	(4.87)	(-1.91)	(2.94)
Observations	633	633	633	633	631	631
Adjusted R-squared	0.720	0.136	0.677	0.153	0.426	0.171

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

국문초록

참여적 예산설정이 성과목표 달성수준에 미치는 영향

지속적인 중요성에도 불구하고, 참여적 예산설정과 관련된 선행연구는 상세 자료 미비에 따라 설문 조사 자료, 실험연구 및 복수의 사업 부문을 가진 단일 회사 자료에 의존해왔다. 본 연구는 2009년부터 2011년까지 S&P 1500대 기업에서 추출한 633개의 기업-연도 관측치를 이용하여 참여적 예산설정이 성과목표 달성수준에 미치는 영향을 분석하였다. 첫째, 참여적 예산설정을 시행하는 기업의 성과목표 달성수준이 참여적 예산설정을 시행하지 않는 기업의 성과목표 달성수준보다 높다. 둘째, 높은 성과목표 달성수준이 참여적 예산설정으로부터 야기된 동기부여 효과 때문인지 또는 슬랙 창출 행동 때문인지를 분석하였다. 이를 위해 재무분석가 예측치를 기준치로 사용하여 성과목표 달성수준을 노력 수준과 예산 슬랙으로 분해하였으며, 그 결과 참여적 예산설정을 시행하는 기업의 높은 성과목표 달성수준은 동기부여 효과로부터 야기되었음이 드러났다. 결론적으로, 본 연구는 예산 설정 과정에서 참여적 예산설정의 지속적인 중요성을 재검증하였다.

주요어 : 참여적 예산설정, 동기부여 효과, 예산 슬랙

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